

Claims

1. A heat-activatable adhesive comprising
 - (i) from about 30 to about 70 wt.% of one or more elastomers,
 - (ii) from about 20 to about 60 wt.% of one or more novolac phenolic resins, and
 - (iii) an effective amount of one or more crosslinking agents capable of effecting crosslinking of the one or more novolac phenolic resins,wherein the ratio of the mass of the one or more novolac phenolic resins over the mass of the one or more elastomers is at least about 0.65, and wherein the heat-activatable adhesive has upon curing a glass transition temperature of less than about 60°C.
2. The adhesive according to claim 1 wherein the ratio of the mass of the one or more novolac phenolic resins to the mass of the one or more elastomers is between 0.65 and 1.0.
3. The adhesive according to any of the preceding claims wherein the elastomers are selected from at least one of natural and synthetic rubbers, butyl rubber, nitrile rubbers, synthetic polyisoprene, ethylene-propylene rubber, ethylene-propylene-diene monomer rubber (EPDM), polybutadiene, polyisobutylene, poly(alpha-olefin), styrene-butadiene random copolymer, fluoroelastomers, silicone elastomers, and combinations thereof.
4. The adhesive according to claim 3 wherein the elastomers comprise one or more poly(butadiene-co-acrylonitrile) copolymers.
5. The adhesive according to any of the preceding claims wherein the novolac phenolic resins have a free phenol content of less than 1 wt.% with respect to the mass of the novolac resin.

6. The adhesive according to any of the preceding claims wherein the crosslinking agent comprises hexamethylenetetramine.
7. The adhesive according to any of the preceding claims comprising one or more vulcanisation agents capable of crosslinking the one or more elastomers, optionally provided in an amount of less than about 0.25 wt.%.
8. The adhesive according to any of the preceding claims having a crosslinking agent capable of effecting a crosslinking reaction between the one or more elastomers and the one or more novolac phenolic resins, the crosslinking agent(s) optionally provided in an amount of less than about 0.25 wt.%.
9. The adhesive according to any of the preceding claims comprising one or more non-curable thermoplastic resins optionally provided in an amount of less than 20 wt.%.
10. The adhesive according to any of the preceding claims comprising electrically conductive particles.
11. A film comprising the heat-activatable adhesive of claims 1-10, said film optionally having a thickness of about 30 to about 200 μm .
12. An assembly comprising a bond comprising the heat-activatable adhesive according to any of claims 1-10, wherein said bond is optionally functionally maintained for at least about 200 Flexural Cycles.
13. The assembly of claim 12 further comprising an electronic element.